

## REMARKS

Claims 1-14, 17-24, and 45-49 remain in the case. Favorable reconsideration is respectfully requested.

The rejection of Claims 1-14, 17-24, and 45-49 under §103(a) in view of Lomax, Jr. et al., U.S. Patent No. 6,623,719, (hereinafter “Lomax”) is respectfully traversed because the Office has both mischaracterized the disclosure of Lomax, and has improperly used Applicants’ own disclosure to supply the motivation that is lacking in the Lomax patent.

In particular, the Office has taken the position that Lomax suggests running his reaction at a lower temperature because: 1) the stated temperatures provided by Lomax are “preferred” temperatures; and 2) the temperature of the reacting mixture is “increased” in the steam reformer, and therefore because the exit temperature is 500°C, the temperature within the reactor must somehow be lower than 500°C. Applicants traverse both points.

Regarding the first point, Applicants respectfully note that the temperature ranges provided by Lomax in the paragraph spanning the bottom of column 15 to the top of column 16 are the only temperatures provided by the Lomax patent. Lomax does indeed characterize the “between 500°C and 900°C” as being the preferred temperature range. See Lomax, column 15, last line. But Lomax does not provide any other temperature range at all. Thus, while Lomax characterizes the 500°C to 900°C range as being the preferred range, it is still the only relevant temperature range provided in the Lomax patent.

Because it is the only range provided by the reference, Applicants respectfully submit that the only motivation to run the reaction at a lower temperature is provided by Applicants’ own disclosure. However, the Office is not free to use Applicants’ specification to provide the required motivation under §103. That motivation must be provided within the applied reference itself.

Thus, contrary to the Office’s position, Lomax fails entirely to suggest running the reaction at a lower temperature because Lomax’ most expansive temperature range

is from 500°C to 900°C. And, as noted in Applicants' prior response, Lomax goes on to state that a more preferred temperature range is between 600°C and 800°C, and an even more preferred temperature range is between 700°C and 800°C. These are the only temperature ranges provided in the entire Lomax patent. Thus, Lomax' low-end temperature starts at 500°C and goes up, not down, first to 600°C, and then to 700°C).

The only motivation to run the reaction at a lower temperature is provided by Applicants' specification. But again, the Office is not free to use the Applicants' specification to supply the motivation or suggestion that is lacking in the applied prior art.

Regarding the second point (that the temperature in the reactor must be lower than 500°C), Applicants respectfully submit that the Office is seriously misreading the Lomax disclosure. The Office has taken the position that because the "exit temperature of the steam reformer may be as low as 500°C," the temperature in the steam reformer proper would be at a value somewhat below 500°C. See the Final Office Action at page 2, bottom. But that reasoning is both irrelevant to the present claims and physically impossible. The present claims absolutely require that the reactants be "react[ed]... at a temperature not greater than about 450°C." Note that the measure recited in the claims does not refer to temperature of the gases, but explicitly refers to the temperature at which the reaction takes place.

In contrast, note that Lomax explicitly refers to "the exit temperature of the heated reformat." See Lomax, column 15, line 64. Lomax is not referring to the temperature within the steam reformer. Lomax is directly referring to the temperature of the gases as they exit the steam reformer from the high-pressure, "cold side (58)." At this point in Lomax' process, the gases are moving from a high-pressure zone into a low-pressure zone. The temperature of the gas is therefore dropping (as it is given room to expand). If the gas coming out of the high-pressure, cold side is between 500°C and 900°C, the temperature within the steam reformer must be a good deal higher than that. If the opposite were true (as asserted by the Office), the gas

would never reach the temperatures required by the explicit teaching in Lomax. In short, if the gas itself exits the reactor at a temperature of between 500°C and 900°C, as is explicitly taught by Lomax, the steam reformer must be operating at a temperature higher than that to get the reactants heated to that temperature.

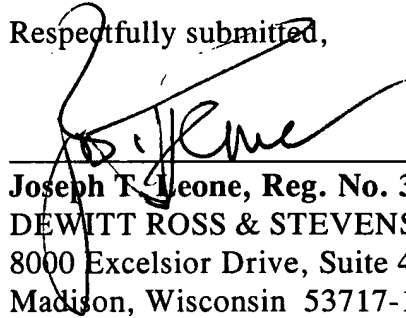
If the temperature within the reactor were any lower than 500°C (even a single degree lower), it would simply be impossible for the exiting gas to be from 500°C to 900°C.

Applicants therefore request that the rejection of Claims 1-14, 17-24, and 45-49 in view of the Lomax, Jr. et al. reference be withdrawn.

### CONCLUSION

Applicants submit that the application is now in condition for allowance. Early notification of such action is earnestly solicited.

Respectfully submitted,



\_\_\_\_\_  
Joseph T. Leone, Reg. No. 37,170  
DEWITT ROSS & STEVENS S.C.  
8000 Excelsior Drive, Suite 401  
Madison, Wisconsin 53717-1914  
Telephone: (608) 831-2100  
Facsimile: (608) 831-2106